

## AGENCY ORGANIZATION

41.01 **Comment:** The National Research Council (NRC) named improved implementation as the single greatest opportunity for improving environmental protection. BLM should implement the many NRC nonregulatory recommendations for improving implementation of the program. Implementation of any iteration of the 3809 regulations promises little in the way of either more environmental protection or procedural benefits to the mining community unless BLM staffing and budget for mineral activities is substantially increased. In addition, BLM's effectiveness and consistency in the day-to-day implementing of the regulations in the field could be addressed by improving its organizational procedures and better training its staff. BLM should assess what would be required in manpower, budget, and training to achieve better and consistent implementation of the current regulations. How regulations are implemented from one office to another can frustrate all parties involved. What BLM should be looking at instead of changing the regulations is adequately funding and staffing, and improving its implementation the current program.

**Response:** We are developing a strategic plan to evaluate the implementation of NRC's nonregulatory recommendations. Along with the needed regulatory changes, we recognize the importance of proper implementing, funding, and staffing of the Surface Management program.

41.02 **Comment:** BLM lacks the funding and staffing to implement the current regulations and must recognize that its resources are already stretched too thin for it to fulfill its existing administrative mandate in a timely fashion. The proposed regulations would place an enormous new workload and responsibility on BLM field people, one for which they are now totally unequipped. BLM does not have adequate staff or budget to implement these regulations. In addition, BLM does not have the technical expertise to implement the proposed regulations, specifically expertise required to determine what is the most appropriate technology and practices or to review Plans of Operations to the level of detail stipulated in the proposed regulations.

**Response:** Adequate funding and staffing of the Surface Management program are BLM concerns. We will continue to work through the budget process to ensure adequate funding. Implementation costs for each alternative are discussed in Chapter 2 of the final EIS.

41.03 **Comment:** NRC stated that BLM's inability to provide timely, accurate information on how it manages its lands is a major problem. NRC also stated that the greatest deficiency was among highly placed officials who have the greatest need to know. BLM needs to address its information management system deficiencies.

**Response:** BLM is developing a strategic plan to evaluate the implementation of NRC's nonregulatory recommendations, including the need for an accurate information

management system.

- 41.04 **Comment:** Due to a lack of funding and staffing, BLM should focus its implementation of the regulations on operations likely to cause more than negligible disturbance.

**Response:** BLM has a responsibility to prevent unnecessary or undue degradation of the public lands. At the same time, BLM does recognize its limited resources and focuses its efforts to address the most pressing on-the-ground concerns.

- 41.05 **Comment:** Any revisions BLM makes to the regulations should strive to keep the administrative burden in line with its available or anticipated resources. The regulations should be formulated with the understanding that BLM's budget and workforce is contracting while the workload is increasing. A proposal that does not recognize the budget and staffing limitations would be counterproductive and may have negative environmental impacts on the public lands as BLM is forced to forgo or curtail other important programs.

**Response:** We recognize the need to adequately fund and staff the Surface Management program in implementing any regulatory changes. But regardless of the funding level, BLM has the responsibility to prevent unnecessary or undue degradation of the public lands.

- 41.06 **Comment:** BLM will not have the resources to adequately implement the proposed regulations. Without adequate funding and staffing BLM cannot enforce the proposed regulations and monitor activity to prevent environmental degradation in a timely manner. The burden of the staffing and funding shortfall will land squarely on the shoulders of the regulated community. This will result in a substantial increase in the cost of doing business, including the cost of complying with regulation provisions and of increasing an already excessively time-consuming review and approval process. BLM's lack of resources will simply add unreasonable and undue burdens to an industry that is already "in the red." The existing 3- to 5-year wait for BLM approval of Plans of Operations imposes significant costs on operators, who face considerable uncertainty. A long enough delay amounts to nothing less than a wholesale denial of operators' rights under the General Mining Law. Under the proposed regulations those delays would be likely to cost mining companies entire field seasons and in turn discourage investment, stymie exploration, and undermine the future viability of the entire industry.

**Response:** We recognize the need to adequately fund and staff the Surface Management program. Inadequate resources to implement the program will delay the review and approval process. Delays represent an increased cost to operators and are discussed in Appendix E of the final EIS.

- 41.07 **Comment:** It is difficult to see where BLM can generate the staff or budget for the

additional responsibilities required by the proposed regulations. Does BLM anticipate or assume an increase in its budget to fund the proposed changes?

**Response:** BLM will continue to work through the budget process to ensure adequate funding. Although we do not expect an increase in funding, our analysis must be based on full implementation of each EIS alternative.

- 41.08 **Comment:** Currently, due to many requirements, BLM often cannot meet its required time frames. The proposed regulations will significantly increase the time required for permitting mining projects. Permitting delays will occur because, under the proposed regulations, BLM is greatly increasing its responsibilities and the information operators will be required to submit, without a corresponding increase in field staff numbers, expertise, and funding. What provisions will be added to ensure that BLM meets their specified time requirements?

**Response:** The requirements of the proposed final regulations will increase BLM's responsibilities and in so doing increase our funding and staffing needs. Implementation costs are discussed in Chapter 2. Generally, the specific time requirements in the current regulations have not increased in the proposed final regulations.

- 41.09 **Comment:** The funding and staffing requirements for BLM to implement the proposed regulations do not appear to have been estimated adequately. The public has the right to receive accurate information on the cost to the taxpayer to implement the proposed regulations.

**Response:** More comprehensive documentation of the estimated funding and staffing requirements is included in Chapter 2 of the final EIS.

- 41.10 **Comment:** It seems clear that BLM had no intention of performing an honest, objective environmental analysis based on fact, sound science, or law. It is inappropriate for BLM to fabricate mumbo-jumbo to justify the need for new regulations. The regulations and EIS should be developed without bias by objective qualified scientists. BLM should carefully consider its staff recommendations, existing laws, and what is in the best interest of the citizens of the United States.

**Response:** Documentation and analysis presented in the draft and final EISs were based on the information available to BLM. The analysis was conducted by professionals in an unbiased manner. At no point in the evaluation of the alternatives and the environmental consequences was the EIS team directed to modify or change its conclusions.

- 41.11 **Comment:** Secretary Babbitt and Solicitor Leshy are responsible for the proposed regulations as a way to rewrite the Mining Law. The proposed regulations are nothing more than politics. These political appointees have an anti-mining agenda. It is the height

of arrogance that the many reasonable requests of the western senators and governors and the Congress of the United States are being deliberately ignored. These officials don't care to listen to good science, common sense, or honest public opinion. They obviously represent the interests of groups intent of stopping mining, farming, logging, and ranching in the United States. It would be nice if BLM was viewed as an objective agency instead of just another tax-funded arm of the Sierra Club.

**Response:** The proposed final regulations were developed in response to the purpose and needs presented in the EIS. These needs were determined by BLM and the public through the scoping process, comments on the draft EIS, and the recommendations and findings in the NRC (1999) report.

- 41.12 **Comment:** The proposed regulations place too much power and discretion in the hands of BLM employees. BLM employees who don't like mining could use their power to stop a project or to shut down a mine without a court order.

**Response:** Given the unique aspect of every exploration and mining project, decisions on these activities need to be made on a case-by-case basis. The discretion given BLM field staff and managers is to ensure decisions consider site-specific issues. We deliberately avoided using national design standards in the proposed final regulations.

- 41.13 **Comment:** BLM failed to consider those elements of the U.S. Forest Service decision process that work better than the BLM decision process. For example, Forest Service staff do not have any difficulty understanding their responsibilities whereas the National Research Council (NRC 1999) determined that BLM upper management does not understand what is actually occurring in the field.

**Response:** BLM is developing a strategic plan to evaluate the implementation of NRC's nonregulatory recommendations, including the need for better field guidance.

- 41.14 **Comment:** The National Research Council report (NRC 1999) discussed inadequate staffing and training that is adversely affecting BLM's ability to implement the existing array of laws that regulate mining on federal lands. The proposed rules would add to the burden and would be inconsistent with the NRC recommendations.

**Response:** The NRC report contains several recommendations to improve the program, including funding and staffing needs, and regulatory gaps. Addressing the regulatory gaps will improve BLM's ability to carry out its responsibilities.

- 41.15 **Comment:** This crisis would be avoided by significantly downsizing BLM's Washington management. The complex issues facing mining do not lend themselves to command and control regulatory fixes from Washington, D.C.. Washington should be listening more closely to BLM field offices. We have an excellent working relationship with BLM field

people. We didn't have any problems until Washington told BLM field offices that they need to do business differently.

**Response:** Given the unique aspect of every exploration and mining project, decisions on these activities need to be made on a case-by-case basis. The discretion given BLM field staff and managers in the proposed final regulations is intended to ensure that most decisions are made at the field level.

## APPENDIX D: SUMMARY OF STATE MINING REGULATIONS

- 42.01 **Comment:** We received many comments on the accuracy and completeness of the “Summary of State Mining Regulations/Programs” in Appendix D of the draft EIS. In addition, commenters cited many instances where the appendix did not accurately or completely present the provisions for specific states. Further, certain states—South Dakota, Minnesota, and North Dakota—were missing. Other programs such as the Clean Water Act, which is a federal program and in some instances has been handed over to the states that have primacy, were not evaluated.

**Response:** As part of their comments on the draft EIS, the Precious Metals Producers submitted a detailed review of state regulatory programs, “Mining Regulatory Programs in the Western United States: A Survey of State Laws and Regulations, February 23, 2000.” This document was an update of a 1994 survey conducted by the Precious Metals Producers of the western state mining regulations, including the regulatory requirements for Alaska, Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming. Because we found this document to be both comprehensive and accurate, we have included it in its entirety as Appendix D in the final EIS.

- 42.02 **Comment:** The summary of state programs in Appendix D should but fails to serve three important purposes:
- As part of BLM’s duty to provide an adequate discussion of the No-action Alternative (Alternative 1), BLM must accurately describe the status quo (in this case, the existing regulatory scheme, which includes not only federal regulation but also state regulation of mining) in manner commensurate with its discussion of the other alternatives.
  - BLM relies on the summary to describe the existing regulatory framework that serves as a “backdrop” upon which its proposed regulations (Alternative 3) are compared and considered.
  - BLM relies on this summary for its description of Alternative 2, State Management.

**Response:** We presented Appendix D of the draft EIS as a summary of the state mining regulation programs. We did not intend it to be a comprehensive or detailed discussion of these programs. The state programs exist under all alternatives. As such, we felt that presenting a detailed discussion of the state regulatory provisions would not measurably contribute to describing the programmatic differences between the EIS alternatives

- 42.03 **Comment:** Throughout Appendix D BLM states that the Arizona Mined Land Reclamation Act (AMLRA) applies only to private land. As noted in the general discussion of Arizona laws in Section I of these comments, this is not correct. This misconception apparently derives from the following statement in the AMLRA: “If an exploration operation or a mining unit is located on land administered by a federal agency, an approved federal reclamation plan and a financial assurance mechanism for the federal

land that are consistent with the requirements of this chapter supersede the requirements for a reclamation plan and financial assurance mechanism otherwise required by this chapter.” A.R.S. 27-932(B). The purpose of this provision was to ensure consistency and avoid duplication. This provision allows flexibility to use either a state or federal reclamation plan for a mine wholly or partly on federal lands. But the law is clear that the state standards must be met on federal lands as well as private lands.

**Response:** The Arizona Mined Land Reclamation Act applies only to metalliferous mines, or mines providing feed to metalliferous mines, on private land. Without an agreement between the BLM and the State of Arizona, the Arizona Mining Land Reclamation Act has no authority on BLM-managed lands.

- 42.04 **Comment:** BLM does not explain the methodology for preparing Appendix D or name the sources of information that it considered. Nor does BLM explain how it arrived at its figures on state staffing. Despite BLM’s claims of coordination and consultation with states, governors, and state agencies, there is no indication that BLM even invited state regulatory agencies to review the short summaries of their programs or circulated Appendix D to the states before the draft EIS was published. In fact, state agency representatives at several public hearings testified that no effort was made to contact states about the substantive content of their programs.

**Response:** The Summary of State Mining Regulations/Programs presented in the draft EIS is a compilation from published and unpublished sources, including the following:

- A document prepared by the Environmental Law Institute, “Hard Rock Mining: State Approaches to Environmental Protection.”
- Copies of state regulations, manuals, and handbooks.
- Information provided by BLM’s state office 3809 leads and state agency people.

Instead of attempting to summarize all aspects of the existing state mining regulations, we opted to focus mainly on provisions that relate to the regulatory issues being considered in this rulemaking. Where staffing information was included in the summary, that information was provided by the state agency in question. In response to comments on the draft EIS, we included in Appendix D of the final EIS a detail summary provided by the Precious Metal Producers.

## APPENDIX E: CHANGES IN MINERAL ACTIVITIES

43.01 **Comment:** Assumption 1 is inaccurate. Exploration has significantly decreased in the western United States while staying about the same worldwide. The U.S. exploration projects have been in decline since 1993, and the decline is expected to continue as U.S. companies spend money on exploration outside the United States. Assumption 4 has been most recently demonstrated to be false in 1996 when the Grand Staircase-Escalante withdrawal of lands by presidential executive order. This action alone removed 1.7 million acres from mineral entry. On January 21, 1980, the price of gold hit a historic high of \$873 per ounce. The price now is around \$300 per ounce. The only thing about the price of gold that is relatively stable is its downward trend (Assumption 5). Given the current state of the economy, there is some question about which direction the price of gold will go. Past trend in the number of mining Notices and Plans of Operations bears little resemblance to future levels of activity or inactivity (Assumption 6). BLM assumes that domestic industrial minerals production will continue to increase. This assumption is false given the current administration's policies dealing with mineral activity on public lands (Assumption 8). It is inaccurate to assume that overall mineral activity on public lands will remain steady or slightly decline under current management (Assumption 11). The uncertainties in permitting and the policies of this administration will combine to cause significant decreases in mineral activity on public lands.

**Response:** We received several comments on the assumptions used in the draft EIS. In response to these comments and the availability of more data, the assumptions used in Appendix E of the final EIS have been changed and are discussed below.

We assume that commodity prices, exploration activity, domestic mineral production, and mineral activity, including the number of Notices and Plans of Operations, on public lands will remain relatively stable for the foreseeable future. Although commodity prices, exploration activity, and the number of Notices and Plans of Operations have recently declined, no obvious factors would suggest that a long-term trend has been established. Domestic mineral production for most minerals has remained relatively stable except for the continuing increase in production of many domestic industrial minerals. As the U.S. economy expanded throughout the 1990s, domestic industrial mineral sources, including those on public lands, continued to increase production to meet the demand for many industrial minerals. We assume that industrial mineral production will continue to increase, reflecting continued long-term growth in the domestic, regional, and most local economies.

The assumptions on advancing technology, geographic distribution of activity, and federal ownership were not changed from those in the draft EIS. We received no substantive comments and obtained no more data to suggest a change to these assumptions.

We have added two new assumptions in response to public comments. For the



foreseeable future, public lands open to mineral entry under the mining laws will continue to decrease as lands are set aside for environmental protection. In addition, environmental laws, regulations, and policies will continue to become more protective over time.

### **Estimated Changes in Mineral Activity**

43.02 **Comment:** The impact of the proposed rule on exploration geologists and small grassroots exploration companies would be far greater than BLM estimates. As a result, the overall level of mineral activity will decline more than estimated because of the decline in the number of future discoveries that could become future mines. BLM analysis fails to acknowledge any relationship between exploration and mining. Specifically, the analysis needs to account for future mining activity changes that will result from reductions in present exploration.

**Response:** The impact of the proposed final regulations on exploration would depend to a great extent on whether the operation would be required to prepare a Plan of Operations. Current Notice-level exploration operations that would be required to submit Plans of Operations under the proposed final regulations would generally be limited to those that would cause surface disturbance greater than casual use in special status areas. In the proposed final regulations, special status areas are defined as follows:

- Lands in the California Desert Conservation Area (CDCA) designated by the CDCA Plan as “controlled” or “limited” use areas.
- Areas in the National Wild and Scenic Rivers System and areas designated for potential addition to the system.
- Designated areas of critical environmental concern.
- Areas designated as part of the National Wilderness Preservation System and administered by BLM.
- Areas designated as closed to off-road vehicle use, as defined in §8340.0-5 of this title.
- Any lands or waters known to contain federally listed threatened or endangered species or their critical habitat.
- National monuments and national conservation areas administered by BLM.
- All areas segregated in anticipation of a mineral withdrawal and all withdrawn areas.

For Alternative 3, an exploration effort that is a Notice-level operation under the existing regulations but will be required to submit a Plan of Operations under the proposed final regulations will experience a fairly large percentage increase in compliance cost. For an exploration effort that remains a Notice-level operation, the added costs would be limited to those of bonding, which would amount to a fraction of a percent increase in the operation's total cost.

But reductions in exploration have more to do with changes in profitability and the availability of funds for exploration and relatively less to do with changes in the cost of exploration. Exploration is the minerals industry's research. When the minerals industry

is going through periods of low profitability, exploration is one of the first places where cuts occur. In turn, a reduction in exploration clearly has negative implications for mineral properties for future development. For Alternative 3, we estimated that the reduction in overall non-casual use mineral activity will range from 5% to 30%, depending on the type and size of mining. The decline in exploration is expected to be in line with the overall change in mineral activity. We assumed a 10% to 20% reduction.

- 43.03 **Comment:** BLM's analyses (Appendix E) ignores fundamental economic principles, overlooks factors that are critical to the questions being asked, and places the critical decision of translating that information into projected impacts in the hands of people who are not trained for that task. BLM properly notes that a critical factor in the analysis of environmental impacts is the response of the mining industry to the new regulatory requirements. But in attempting to obtain that information BLM has made the process more complicated than necessary and has not produced any meaningful analysis. Every day mining companies make investment decisions in response to proposed regulatory requirements. Economic experts have studied the issue and published their results, and can determine the variables that influence investment in mining projects. BLM should have hired an expert or asked the industry for information. BLM fails to consider a fundamental economic principle in the mining context—investment decisions are made on the basis of projected cash flow and the rate of return rather than a simple accounting of costs. The models improperly focus attention on costs rather than cash flow issues, and thus they have little meaning in the context to which they are applied.

**Response:** The regulatory alternatives discussed in the draft EIS will affect existing mining operations, known mineral properties, and yet-to-be-discovered mineral properties for a wide range of minerals covered by the Mining Law. Given the programmatic nature of regulations, BLM purposely avoided conducting investment analysis on individual mines or mineral properties. An economic analysis (investment decision) of an individual property is a precise analysis that is highly sensitive to the assumptions used. Slight changes in the input assumptions, such as the grade of the ore, commodity price, discount rate, or other variables, can dramatically change the value of the property and the corresponding investment decision. Such a detailed analysis, even for a few properties, would be counterproductive by focusing the analysis on the many mine cost model inputs and economic model inputs and away from the cost of the alternative regulatory provisions.

BLM instead focused its analysis on variables that would be directly affected by the proposed regulations and alternatives, using two approaches. One was to develop mine cost models for example mineral properties. These models gave BLM and the public estimates of the cost or changes in cost for activities involved in exploration, development, production, and reclamation of mineral properties, for example, the cost of preparing a typical environmental assessment. The other approach was an independent rating by EIS team members of the effect each regulatory provision would have on different types and

sizes of mineral operations. Each subjective call included the direction and extent of the effect the individual regulatory component would have on the categories of mineral operations. BLM used the same process to estimate the relative importance of each regulatory component. The resulting scores provided a detailed indicator of the effects on particular types and sizes of mineral operations and also which regulatory provision would cause those effects.

Both approaches required us to make judgments on inputs to the analyses, including the cost and effect of the regulatory components. We recognize the subjective nature of these approaches and welcomed alternative estimates and assumptions. Specific comments on the costs and effects we used are discussed below.

- 43.04 **Comment:** As part of the EIS analysis, the Council on Environmental Quality (CEQ) requires BLM to “insure the professional integrity, including scientific integrity, of the discussions and analyses” and “identify any methodologies used and ... make explicit reference .. To the scientific and other sources relied upon for conclusions in the [EIS].” 40 CFR 1502.24. CEQ also requires that if BLM has “incomplete information relevant to reasonably foreseeable significant adverse impacts [that] is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the [EIS].” 40 CFR 1502.22(a). Much more detail is needed in explaining and documenting the conclusions and methodologies used in Appendix E. BLM has not complied with either mandate.

**Response:** The final EIS discusses the reasonably foreseeable mineral development scenarios (RFDS), the methodologies used to develop those scenarios, and our documentation of the methodologies applied. The proposed final regulations and alternatives would affect existing mining operations, known mineral properties, and yet-to-be-discovered mineral properties for a wide range of minerals covered by the Mining Law. These mineral properties are the basis for the RFDS.

As reported in the draft EIS (pages 86 and 87), 6,216 Notices and 932 Plans of Operations were filed with BLM in 1997. These numbers represent the existing mining operations and some portion of the known mineral properties found on the public lands. Of these properties, BLM would generally have access only to information needed to make a meaningful economic analysis on those properties covered by Plans of Operations. Active mining claims would account for a larger percentage of properties potentially affected by the regulations. At the end of fiscal year 1998, there were 288,696 active mining claims. Even this number would not generally account for the yet-to-be-discovered mineral properties. The U.S. Geological Survey, Mineral Resources Program conducts mineral resource investigations that include estimates of undiscovered mineral resources. But these studies have not proved to be useful in developing RFDS, even on a local basis.

Because of these limitations on data and the many potential properties involved, BLM defined the future under the No Action Alternative using a set of assumptions. Futures under the other EIS alternatives, including the proposed final regulations, were then characterized as changes from this baseline. Appendix E of the final EIS describes the methodology and process used to estimate future mineral activities under the alternatives. This approach was taken and the documentation provided in Appendix E specifically to conform with the requirements of 40 CFR Part 1502.22.

- 43.05 **Comment:** The Delphi method is unsuitable for the task at hand, and even if it were suitable, BLM did not implement it correctly. The Delphi method, which is used for structuring group communications, is generally selected to address questions that involve the use of multiple subjective judgments and address questions that are not amenable to precise analytical techniques. Although future changes in mineral activity as a result of the proposed regulations share some of these qualities, it is also apparent that the information can be obtained in a more direct fashion. The Delphi method generally uses experts from differing backgrounds. These experts are asked to give their forecasts and describe their relative expertise in answering particular questions. The results are tabulated, with weights based on the stated expertise. The experts are then asked to modify their forecasts in response to this preliminary round of answers. This procedure is usually repeated until convergence is reached.

**Response:** We selected the Delphi method because of its past application in forecasting futures. Due to limited data for mineral properties potentially affected by the proposed regulations and alternatives and the many potentially affected properties, applying other analytical techniques to estimate changes in mineral activity was deemed infeasible. The EIS team felt that the Delphi method was the most suitable approach for forecasting future changes in mineral activity as a result of implementing programmatic requirements. The Delphi method is a process for reaching a group position. General steps are followed in applying the process, but there is no set requirement for expertise, knowledge, or background of the participants or the type of outcome to be reached, except that a group position be reached. In developing the impact matrixes and the changes in mineral activity estimates, participants were asked their opinions or judgments on the potential effects each of the proposed regulation provisions and alternatives. They then shared and discussed their opinions and were asked to record their opinions after considering the discussion. They then engaged in another group discussion. This was an iterative process until the group reached a position on each issue under investigation.

- 43.06 **Comment:** The Delphi method is a tool for gathering and assimilating information from experts. The analysis here requires expertise in the area of mining economics and investment. BLM's draft EIS team members, most of which work in the natural resource arena as wildlife biologists, cultural resource specialists, range management scientists, ecologists, or geologists, simply do not have the requisite expertise to conduct an economic analysis. Making such estimates is surely outside the expertise of most of the

EIS team members. If the Delphi method were used correctly, the panel would have included experts from government, industry, state regulators, union leaders, and other interested and knowledgeable parties.

**Response:** All participants are BLM employees and members of the 3809 EIS team. Economic and mineral development experts were part of the effort. Although the Delphi method does not dictate the participation of only experts in certain academic fields, the people most familiar with particular aspects of mining operations generally had the most to contribute during the discussion phases of the process.

- 43.07 **Comment:** The Delphi method usually provides actual figures (how many years until this product will be generally accepted, the size of the market, probable cost, etc.). But the draft EIS merely provides a “score” for each type of mining.

**Response:** For developing the impact matrixes inputs, each member was asked to rate the effect of each regulatory component on different types and sizes of mines. The scale was negligible or no effect (N), low positive or negative effect (L±), medium positive or negative effect (M±), and high positive or negative effect (H±). Each participant was also asked to weight the relative importance of each regulatory component. The scale was 1 to 5. Components with the highest relative importance were given a weight of 5. Once a group position was obtained for each of the ratings and weights, each regulatory component was “scored.” To facilitate the scoring, numerical values were assigned to the ratings (N=0, L=1, M=3 and H=5). The score for each regulatory component is the product of the rating and weight. The range of possible scores for each regulatory component is -25 to +25.

Estimating the changes in mineral activity was more straightforward. Each participant was asked to estimate the expected change in mineral activity from the baseline (No Action Alternative) for certain types and sizes of mineral operations under the other EIS alternatives. Estimates were made in 5% increments. But after several iterations of estimates and discussions, some participants became uncomfortable assigning a “no change” when some change in activity, but less than 5%, was expected. For these situations, participants were allowed to estimate a change greater than 0 but less than 5% ( $\pm < 5$ ). In response to comments on the uncertainties of estimating alternative futures, a range of values was developed for the different sizes and types of mineral activity under the alternatives. These estimates are presented in Appendix E of the final EIS.

- 43.08 **Comment:** BLM’s projections of future mineral activity consider only the impact of the proposed 3809 revisions in isolation and fail to account for the cumulative impacts of the proposed regulations with other past, present, and reasonably foreseeable actions. This oversight has resulted in projections and environmental analyses that are wrong.

**Response:** The affected environment (Chapter 3) describes the current situation, which

includes the cumulative impacts of actions and events that have already occurred. As for future mineral activity, BLM defined the future under the No Action Alternative by a set of assumptions (Appendix E). These assumptions include the future actions and events that the EIS team felt could be reasonably assumed. As was discussed in response to the comment above, we took this approach because of data limitations and the many mineral properties potentially affected by the proposed regulations and alternatives. We then characterized futures under the other EIS alternatives, including the proposed regulations, as changes from this baseline.

- 43.09 **Comment:** BLM states (draft EIS, page A-103) that the estimates made produce reasonably foreseeable assumptions on future activity to use in evaluating environmental consequences and the potential direction and magnitude of change. Yet BLM also states that the process has substantial limitations and the assumptions should not be considered factual data, or accurate or precise estimates of change. BLM cannot have it both ways.

**Response:** We added the statement to make it clear to the decision makers and the public that these estimates are of alternative futures, not documented events. In addition, given the many unknowns, these estimates should not be construed as being accurate or precise. There are tremendous uncertainties given the nature of the analysis. To better accentuate these uncertainties, we have presented our estimates as ranges.

### **Impact Matrices**

- 43.10 **Comment:** In the matrices BLM fails to consider proposed regulation provisions and/or inaccurately represents the level of importance of the proposed regulations that will directly affect future mineral activity. Specifically, BLM fails to account for the negative implications of the performance standards, most appropriate technology and practices (MATP), mitigation, concurrent reclamation, and water quality), uncertainties, delays, and liability created by the proposed regulations. Also, the weights and scores are not accurate representations of the level of importance of citizen inspection, bonding, penalties and enforcement, and backfilling provisions.

**Response:** The ratings and weights used in the impact matrices are the collective opinions or judgments of the EIS team. The process for reaching these group positions was described in a response above. In formulating an opinion as to a particular rating or weight, each participant considered the factors, such as uncertainties and delays, that had important positive or negative implications. The group then discussed the ratings and weights, including the important contributing factors. With this information, participants then reconsidered their ratings and weights.

The EIS team recognized the sensitivity of certain regulatory provisions, including citizen inspection, penalties and enforcement, and backfilling. But the team applied the highest ratings and weights to regulatory provisions and operational areas that would most

materially affect the industry. In the case of inspections and monitoring requirements and penalties and enforcement procedures, we believed that the industry as a whole has a good environmental record. As such, no matter how beneficial or onerous the regulatory provision might be, it would not materially affect most operations on the ground as much as other provisions might. For the proposed regulations, the EIS team rated the inspection and monitoring requirements and penalties and enforcement procedures as having little on-the-ground effect on the average operator.

On the other hand, the team felt that backfilling could materially affect the industry. Backfilling received a weighting of 5, the highest weight. The backfilling provision in the proposed regulations, however, received negligible to medium ratings, depending on the type and size of operation. The relatively low ratings were based on the EIS team's interpretation of the proposed backfilling provision. Backfilling is not required if the operator can show BLM that backfilling is not feasible for economic, environmental, or safety reasons. The requirements of the proposed provision are similar to existing State of Nevada backfilling requirements. A 1998 review of backfilling in Nevada by the BLM Nevada State Office found that partial backfilling has occurred or is proposed in about 25% of recently approved Plans of Operations (Memorandum dated 10/9/98, Subject Backfilling of Open Mining Pits in Nevada). But no major mine pits in Nevada have been completely backfilled under the State of Nevada's backfilling requirement.

- 43.11 **Comment:** What version of the proposed regulations did the EIS team review when preparing the matrices?

**Response:** The team reviewed the proposed regulations included as Appendix B in the draft EIS. These regulations were released for public comment on February 9, 1999.

- 43.12 **Comment:** The impact matrices are flawed because they look at the impacts of the proposed regulations in isolation and fail to account for the cumulative impacts of the proposed changes. Different projects will be affected by different requirements.

**Response:** The impact matrices are a tool for assessing the impact of the regulatory provisions on different types and sizes of mineral operations. The matrices give scores for the individual regulatory components, the administrative provisions, the performance standards, and the entire regulatory package. Every mineral operation is unique and as such will be affected differently by the proposed regulatory provisions and alternatives. But the regulatory alternatives discussed in the draft EIS will affect existing mining operations, known mineral properties, and yet-to-be-discovered mineral properties for a wide range of minerals covered by the Mining Law. It would be infeasible for BLM to conduct individual impact analyses of every known mineral property on the public lands, much less those yet undiscovered properties. The EIS team developed the impact matrices to provide indicators of the scale and direction of the regulatory effects and the general type and size of operation being affected. BLM did not intend for this tool to

determine the differing affects on individual operations.

- 43.13 **Comment:** Alternative 1, the No Action Alternative, was not subjected to the same matrix process as the other alternatives, and thus there is no baseline for comparing the changes portended by the other alternatives.

**Response:** The purpose of the matrix is to determine and assess the potential change that the proposed regulation provisions and the alternatives might have on mineral activity. The No Action Alternative is the baseline from which change might occur. As such, the baseline represents the continuation of existing conditions—the affected environment—and is considered to cause no added impact. Chapter 3 describes the affected environment.

- 43.14 **Comment:** The last sentence on page A-105 describing the impact matrices is cut off.

**Response:** The paragraph (pages A-105 and A-115) including the cutoff sentence should read: “The ratings and weighs were then used to estimate the anticipated effects of the 25 regulatory categories on each sector of the industry, the “score.” To simplify the scoring, a numerical value category was assigned to a particular sector of the industry. Tables E-2, E-3, and E-4 show the scores for each of the regulatory provision categories.” The EIS has been corrected to include this omission.

- 43.15 **Comment:** The calculations of the impacts on Table E-3 are incorrect. The number for “Small <5 acres” should be -12, not -9. The number for “Large >5 acres” should be -4, not -3. As a result of the miscalculation, the administrative impacts subtotal and the administrative and performance impact total for open pit metal mines on Table E-5 are underestimated.

**Response:** Tables E-3 and E-5 have been corrected.

### **Mine Cost Models**

- 43.16 **Comment:** BLM fails to adequately account for compliance costs in the mine cost models. Specifically, BLM fails to account for or underestimates the costs of pit reclamation, MATP, mitigation, concurrent reclamation, bonding, limitations on impacts to water quality, liability, Plan and NEPA documentation, claim validity examinations, and citizen inspection requirements. In addition, BLM does not account for the confusion, duplication, and inconsistency created by the proposed regulations.

**Response:** We developed the mine models to show a relative cost change among alternatives. The costs used in the models came from existing publications on costing mineral activities, see page A-117 of the draft EIS. In the final EIS the mine model costs have been updated and adjusted with more information.



- 43.17 **Comment:** BLM fails to consider the cost of delays in its mine cost models, even though citing the time value of money as an example of a cost to industry of regulatory change. Some of the delays are inevitable, such as the proposed change to a 15-business-day waiting period for Notice-level activities, more situations requiring Plans of Operations, and greater opportunities for administrative appeals. This is a particularly critical omission for minerals exploration. In a recent Nevada Division of Minerals survey, uncertainty of permitting time frames and the actual length of permitting time frames trailed only favorable geology as the most important factors influencing mineral exploration.

**Response:** The EIS team recognizes the importance of uncertainties, delays, and lengthy permitting processes as negative factors affecting the economics of mineral exploration and development. These factors can become so onerous that individual projects may be abandoned. One of the assumptions for the cost models (draft EIS, pages A-117 through A-119) is that operators will submit complete documents in a timely manner and that BLM will process projects on time. This is not always the case. But most aspects of the cost of delays are project specific and not conducive to a programmatic analysis.

In response to public comments, the proposed final regulations have reduced the number of days to process Notices and Plans to 15 and 30 days respectively, subject to conditions. The cost of delays is a relative factor on projects. BLM understands the dynamic environment in which exploration projects operate. Under the proposed final regulations BLM would continue to review most exploration projects as Notices. Mining operations should be able to establish time lines that allow for the time value of money in their feasibility studies on developing the mine.

- 43.18 **Comment:** The draft EIS sets forth the data and assumptions underlying the mine cost models but does not discuss who developed the models or the method used to develop the models. The only remaining source of information for Appendix E appears to be the expertise, knowledge, and experience of BLM's team members.

**Response:** The models were developed by members of the EIS team, which determined as a team which models were needed and for what purposes. The people listed in Chapter 4 reviewed and developed these models.

- 43.19 **Comment:** The EIS needs to present mine cost models for recreational, underground, and industrial mining. The EIS should also present open pit and underground models for the mining of industrial mineral.

**Response:** BLM recognizes the wide variety of mining methods used to extract minerals on public lands. Given the programmatic nature of the proposal and its large geographic scope, we needed to develop models that would in a general way represent the most common types of operations and how they might be affected by the proposal and alternatives. We have added an underground mining model to the final EIS.

43.20 **Comment:** For the mine cost modeling for Alternative 2, BLM assumes that all of the state programs are based on current BLM regulations. BLM might as well have copied the language from its discussion of Alternative 1 costs, which analyzes costs under current BLM regulations. This is contrary to NEPA requirements for a detailed consideration of each of the alternatives.

**Response:** There is a fundamental connection between the No Action Alternative and Alternative 2. The connection is not, however, the current 3809 regulations but rather the existing federal and state regulatory programs. Specific to the cost modeling effort, the State of Nevada was used as the concept vehicle for the model development for Alternative 2. The final EIS clarifies this matter.

43.21 **Comment:** The EIS finds that open pit mines will be the most heavily affected, while exploration projects will be the most lightly affected. The Benefit/Cost Analysis results show precisely the opposite pattern.

**Response:** The cost models presented in the draft EIS and Benefit/Cost Analysis under the Proposed Action described in the draft EIS show a far greater increase in operating costs for exploration than is likely to occur for open pit mining. But in spite of the cost increase differences, the EIS team expects that open pit mining and exploration will have fairly similar levels of reduction in activity.

43.22 **Comment:** The type of exploration program described in the exploration model is not representative of today's exploration projects. Frequently, exploration projects are drilling much deeper than 200 feet.

**Response:** BLM understands the need for drilling deeper than 200 feet. But the model shows the relative difference among the alternatives, and the depth of the drill hole is not relevant to the analysis. If the holes were 2,000 feet deep, the proportion of the expanded cost should remain the same.

43.23 **Comment:** BLM grossly underestimates the cost to obtain a bond. Many smaller companies doing exploration may be unable to qualify for bonds and must put up cash or certificates-of-deposit like instruments. If a company does not qualify for a reclamation bond, then generally the premiums are significantly higher, at least five times greater than the 2% used by BLM.

**Response:** We have checked with several bonding companies and have determined that we did underestimate the bond requirement. But the bond premium for good operations was quoted as 5%. We have made these changes to the models for the final EIS.

43.24 **Comment:** BLM used \$1.68/ton ore as the operating cost in its open pit mine model (page A-149). But the source article (Western Mine Engineering, Inc. CM, Appendix D4)

used \$9.20/ton ore. With BLM figures the gross margin is affected by only 8%, whereas with the costs from the source article the gross margin for the proposed alternative is 50% less than the No Action Alternative. This simple analysis does not consider taxes or the time value of money.

**Response:** We agree and have changed the models for the final EIS. We did not factor the time value of money into the models because of the variability of the process and our assumption that mining companies will understand the time schedule needed and the requirements and there should be no unnecessary delays.

- 43.25 **Comment:** The BLM example considers backfilling only part of the hypothetical open pit mine at an estimated cost of \$0.75/ton (A-144 to A-153). But the example provides no criteria for the backfill, so we have no idea what the \$0.75/ton represents. A more accurate way would be to take several working mines, in different topographies and work out the costs for different backfill criteria.

**Response:** The \$0.75/ton was developed using your method. BLM's Nevada State Office produced a paper on the cost of backfilling based on actual mining operations throughout Nevada, titled *Backfilling of Open Mining Pits in Nevada - Practice and Documentation* (BLM 1998d). The figure used for this model was the average cost of a mining operation that resembled the model described.

- 43.26 **Comment:** BLM estimates the cost of preparing the EIS for an open pit mine would be about \$600,000. We think BLM estimates are understated by as much as 500%.

**Response:** We based the \$600,000 figure on information from telephone conversations with mining interests and contractors. The cost was the average of the EISs produced in the last several years. Several documents have cost up to \$2.2 million dollars to complete, but several other documents were completed for less than \$200,000.

- 43.27 **Comment:** The mine cost model figures are similar but not identical to the percentage cost increases calculated by BLM in its Benefit-Cost Analysis. The fundamental flaws that were pointed out in the review of the B-C study are repeated in the mine models.

**Response:** The mine models produced for the draft EIS were used in the Benefit-Cost Analysis. But the analyses addressed different requirements. We have reviewed the mine models in response to your comments.

- 43.28 **Comment:** The estimates of reclamation of \$4.6 million under existing regulations and \$6.9 million under the proposed regulations are grossly understated if the costs of backfilling are considered. It is clear that the estimate of \$6.9 million understates the true cost of reclamation by a factor of two or more.

**Response:** These estimates are based on industry, academia, and government documents. We developed the models to show the percentage change of the potential cost to industry for each alternative, not to conduct a full feasibility study. We have changed the Proposed Action to eliminate the presumption of back filling, so the likelihood of back filling is greatly reduced.